



National Unit specification: general information

Unit title: Livestock Reproductive and Digestive Systems
(SCQF level 6)

Unit code: H2N1 12

Superclass: SH

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Summary

This Unit enables learners to acquire knowledge of livestock reproduction and digestion. Learners will study the structure and function of the reproductive system and the digestive system, and the associated routine and procedures for stock from mating through to parturition. Learners will also gain knowledge of appropriate selection of feeds for livestock, taking into account animal energy requirements and the breakdown of feedstuffs to meet these requirements.

This is an optional Unit within the National Certificate in Agriculture (SCQF level 6) but is also available as a free-standing Unit.

This Unit is suitable for learners who have no prior knowledge in this area. Successful completion may facilitate progression to further study of livestock or to employment.

Outcomes

- 1 Identify and describe the structure and function of the male and female reproductive systems.
- 2 Describe the routine adopted in caring for stock at mating, pregnancy and parturition.
- 3 Describe the structure, function and development of the digestive system in livestock.
- 4 Describe selection and use of feeds for a given situation.

Recommended entry

While entry is at the discretion of the centre, it would be beneficial if learners had some prior knowledge of livestock and biology.

National Unit specification: General information (cont)

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Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the support notes of this Unit specification.

Credit points and level

1 National Unit credit at SCQF level 6: (6 SCQF credit points at SCQF level 6*)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

National Unit specification: statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Outcome 1

Identify and describe the structure and function of the male and female reproductive systems.

Performance Criteria

- (a) Identify the position of the anatomical features of the male and female reproductive systems.
- (b) Describe the functioning of the male and female reproductive organs.
- (c) Identify and describe frequency and duration of oestrus and gestation length in different classes of livestock.

Outcome 2

Describe the routine adopted in caring for stock at mating, pregnancy, and parturition.

Performance Criteria

- (a) Describe the importance of body condition and flushing prior to mating.
- (b) Describe preparation of a sire for service and the conditions for successful mating.
- (c) Identify the signs of pregnancy and approaching parturition and describe procedures at parturition.

Outcome 3

Describe the structure, function and development of the digestive system in livestock.

Performance Criteria

- (a) Describe the structure and functioning of the digestive system.
- (b) Describe the development of the stomach in the ruminant animal.
- (c) Describe the process of digestion.

National Unit specification: statement of standards (cont)

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Outcome 4

Describe selection and use of feeds for a given situation.

Performance Criteria

- (a) Identify and classify the composition of a range of feedstuffs.
- (b) Describe a suitable diet for a given situation.

Evidence Requirements for this Unit

Written and/or oral evidence is required to demonstrate that the learners have achieved all of the Outcomes and Performance Criteria. Evidence must be obtained under supervised conditions at appropriate points throughout the Unit. Evidence can be generated holistically, or Outcome by Outcome.

For Outcome 1, learners must provide evidence of the following:

- ◆ Identification of the position of at least four anatomical features of both the male and female reproductive systems
- ◆ Accurate description of the functioning of the male and female reproductive organs making reference to ovulation and sperm production
- ◆ Statement of frequency and duration of oestrus and of gestation length in three different classes of livestock

For Outcome 2, learners must provide evidence of the following:

- ◆ Description of ideal body condition and one reason for flushing prior to mating
- ◆ Description of preparation of a sire for service and at least three conditions for successful mating
- ◆ Identification of at least two signs of pregnancy and three signs of approaching parturition in or more species of livestock

For Outcome 3, learners must provide evidence of the following:

- ◆ Description of the functioning of the digestive system must be in relation to both monogastric and ruminant animals, highlighting the main differences.
- ◆ Description of the development of the stomach and the process of digestion in the ruminant animal. This must include reference to different life stages.

For Outcome 4, learners must provide evidence of the following:

- ◆ Identification of a minimum of 10 feedstuffs and classify them in terms of their composition
- ◆ Description of the composition of a diet in terms of its quality, quantity and suitability for both a ruminant and a monogastric animal

National Unit specification: statement of standards (cont)

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This part of the Unit specification is offered as guidance. The support notes are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

This is an optional Unit within the National Certificate in Agriculture (SCQF level 6) but is also available as a free-standing Unit.

In this Unit, learners will develop knowledge about reproductive and digestive systems in livestock. It would be beneficial for learners to have some prior knowledge of livestock and basic biology.

A range of classes of livestock may be considered — pigs, sheep, cattle, goats, poultry etc. Learners will learn about the structure and function of these systems, and about the practical application of this knowledge, within livestock production. Learners will also learn about the components of feeds and their processes within digestion, and how these relate to energy requirements in animals.

This Unit may prepare learners for progression to Higher National Units in agriculture, or other related land-based qualifications.

In Outcome 1, the basic components of the male and female reproductive system should be covered, to enable learners to identify the parts, state their locations within the body, and their functions. Oestrus should be discussed for various types of livestock including cattle, sheep and pigs. The duration and frequency of oestrus should also be discussed with mention made to standing heats, season in relation to long day and short day breeders, the stimulation of oestrus, gestation length, and the role of hormones within this process in general. Heat detection aids, such as raddling and teaser rams should be discussed. Learners should also be shown how to calculate parturition dates.

In Outcome 2, discussion should take place around the timing of pre mating checks with reference to flushing, body condition score, teaser rams, male sex hormones, the male: female ratio, preparation of the sire for service (feet, body condition, teeth, jaw, testicles, penis, prepuce area), sperm testing, use of records and recording (barren females, mating dates etc), weight and age at mating (both female and male), and pregnancy recognition. Descriptions of the signs of approaching parturition should be covered, including animals displaying nesting behaviour, contractions, presence of water bag, and development of udder, etc.

In Outcome 3, learners should be able to identify and describe how the monogastric and ruminant system functions. This should include the location of the oesophagus, oesophageal groove, rumen, reticulum, omasum and abomasums, and small and large intestine. Learners should also be able to describe the development of the rumen from birth to rumen maturity, and the role of feedstuffs in this development.

National Unit specification: statement of standards (cont)

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In relation to Outcome 4, learners should be identify feedstuffs and classify the feed in terms of its composition, eg energy, protein and dry matter. Feeds could include colostrum, liquid feeds, concentrates, mixed rations and forages, for a variety of animals, from birth to adult. Mention of changes in feeds could be covered. Consideration should be given to the practicalities of feeding, such as availability, cost, toxicity, stomach development, and ability to cope with different feeds (eg care when feeding young stock on some crops due to choking hazard, and provision of too much red clover in relation to infertility).

This Unit is broadly aligned to the following National Occupational Standards (NOS) from Lantra:

- LP9 Establish pregnancy and maintain livestock during pregnancy
- LP10 Maintain the health and welfare of livestock during birth and care for mother and baby
- CU36 Enable animals to reproduce and care for their young

Guidance on learning and teaching approaches for this Unit

The Unit should be delivered in as practical a context as possible with delivery taking place during site visits to appropriate subject related companies, and in a classroom setting to develop theoretical knowledge. The emphasis should always be on the practical application of knowledge and understanding.

Learners would benefit from a balanced approach to learning by undertaking field visits to veterinary practices, feed manufacturers, etc. and in classroom activities to develop reproductive and digestion knowledge and understanding. Working in small groups, feed contents could be analysed, or learners could benefit from seeing real reproductive tracts in a lab setting.

By adopting the above learning and teaching approaches and/or through the Outcomes and corresponding Evidence Requirements, the Unit should provide learners with an opportunity to develop the following essential skills for life, learning and work:

- ◆ Employability — through developing practical skills in line with good farm practice and working on time limited tasks
- ◆ Sustainability — through considering the use of resources
- ◆ Technical skills — through analysing feed contents
- ◆ Organisational skills — in terms of personal management through punctuality, record keeping, organising portfolio work, etc
- ◆ Interpersonal skills — through contact with industry representatives and in class teams

National Unit specification: statement of standards (cont)

Unit title: Livestock Reproductive and Digestive Systems
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Opportunities for developing Core Skills

In this Unit learners will develop knowledge in livestock reproductive and digestive systems, and the ability to identify the main parts of each system. They will learn about different feeds and their role within digestion, pregnancy and parturition, and the procedures involved in caring for livestock throughout this process. Learners will:

- ◆ Identify and describe features of digestive and reproductive systems
- ◆ Describe routines and procedures
- ◆ Recognise features of pregnancy and parturition
- ◆ Assess condition of livestock for specific purposes
- ◆ Compare features of the digestive system of monogastric and ruminant livestock
- ◆ Describe selection and use of feeds for a given situation

This means that as they are doing this Unit, learners may develop aspects of the Core Skills of *Communication* and *Problem Solving*.

In addition aspects of the following Core Skills could be developed where particular learning and teaching approaches are adopted:

- ◆ *Working with Others* — through group work
- ◆ *ICT*, eg through recording data electronically or using the internet to source information

Guidance on approaches to assessment for this Unit

All elements of the Unit lend themselves to holistic assessment approaches and could be assessed by a combination of short answer or restricted response questions, assignment or project. Learners could maintain a folio of evidence to record aspects of their work throughout the Unit.

Opportunities for the use of e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Disabled learners and/or those with additional support needs

The additional support needs of individual learners should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements

History of changes to Unit

Version	Description of change	Date

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